

## **CLAIMS**

1. A machine-based method comprising  
receiving historical multi-dimensional data representing multiple variables to be used as an input to a predictive model of a commercial system,  
transforming variables into more predictive variables, including Bayesian renormalized variables, linearly transformed variables and imputed missing values for categorical or continuous variables,  
pruning variables for which the data is sparse or missing,  
adjusting the population of variables to represent main effects exhibited by the data and significant interaction and non-linear effects exhibited by the data.
2. The method of claim 1 in which adjusting the population of variables to represent interaction effects includes  
stages of main effect interactions, main effects with main effect interactions and excluded variable interactions, and main effects with main effect interactions and excluded variable interactions together with excluded variable combined interactions.
3. The method of claim 1 in which the predictive model predicts behavior of a current customer with respect to retention of a current service or product of a vendor.
4. The method of claim 1 in which the predictive model predicts behavior of a current customer with respect to risk of asserting claims, loan payment or prepayment to a vendor.
5. The method of claim 1 in which the predictive model predicts behavior of a current customer with respect to usage of a current service or product of a vendor.
6. The method of claim 1 also including enabling a user to replicate information about the model as it existed as of the making of any one of the choices.
7. A machine-based method comprising  
in connection with a project in which a user generates a predictive model based on historical data about a system being modeled, providing to the user through a graphical user interface the sequence of dimension reduction.
8. The method of claim 7 in which the system comprises behavior of prospective or current customers of a vendor with respect to products or services offered by the vendor.

9. The method of claim 7 in which the predictive model predicts behavior of a prospective or current customer with respect to purchase of a product or service of a vendor.
10. The method of claim 7 in which the predictive model predicts behavior of a current customer with respect to retention of a current service or product of a vendor.
11. The method of claim 7 in which the predictive model predicts behavior of a current customer with respect to risk of asserting claims, loan payment or prepayment to a vendor.
12. The method of claim 7 in which the predictive model predicts behavior of a current customer with respect to usage of a current service or product of a vendor.
13. The method of claim 7 in which the user interface controls staging of the sequence of model generation activities.